

STUDIES ON NORTH AMERICAN BEES OF THE GENUS *HYLAEUS*. 4. THE SUBGENERA *CEPHALYLAEUS*, *METZIELLA* AND *HYLAEANA* (Hymenoptera: Colletidae)

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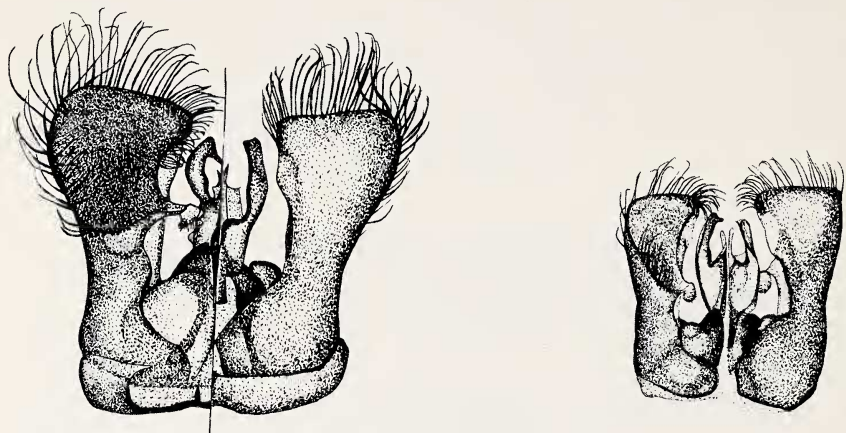
ABSTRACT: In this paper representatives of the subgenera *Cephalylaeus*, *Metziella* and *Hylaeana* are considered. Keys to the forms allocated to each subgenus are presented to distinguish the specific populations. Data concerning the distribution of each species are given.

This is the fourth in a series of studies contributing toward a monograph of the North American *Hylaeus*. The previous parts have appeared as indicated in the literature cited (Snelling, 1966a, b, c). The three subgenera included in the present study may be recognized by the characters indicated in Part 3 (Snelling, 1966c).

KEY TO SPECIES OF *CEPHALYLAEUS*

1. Males 2
 Females 3
2. Clypeus 1.3 times as long as broad, not greatly protuberant, tessellate between punctures; punctures of first tergite moderately coarse, separated by a puncture diameter or less; integument dull, strongly tessellate *basalis* (F. Smith)
 Clypeus slightly broader than long, strongly and abruptly protuberant, shiny, interspaces between punctures slightly tessellate; punctures of first tergite fine, separated by more than a puncture diameter; integument between punctures moderately shiny, weakly tessellate *nunenmacheri* Bridwell
3. Propodeum without distinctly horizontal basal area, evenly sloping toward apex, basal area with rugulae confined to extreme base; supraclypeal area with a number of large punctures; mesopleura shiny between well-separated punctures *nunenmacheri* Bridwell
 Propodeum with distinctly horizontal basal area, basal area longitudinally rugulose over entire horizontal portion; supraclypeal area longitudinally striolate, impunctate; mesopleura dull between close punctures *basalis* (F. Smith)

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basalis

nunenmacheri

Figure 1. Genitalia of *Cephalylaeus* males; right half indicates dorsal aspect, left half indicates ventral aspect. Figures by Ruth Ann DeNicola.

***Hylaeus (Cephalylaeus) basalis* (F. Smith)**

Prosopis basalis, F. Smith, 1853. Catalogue of Hymenoptera in the British Museum, 1:22. ♀ ♂.

Prosopis basalis, Metz, 1911. Trans. Amer. Ent. Soc., 37:102-103. ♀ ♂.

Hylaeus (Cephalylaeus) basalis, Michener, 1942. Jour. N.Y. Ent. Soc., 50:274. Mitchell, 1960. Tech. Bul. 141, North Carolina Agr. Exp. Sta., pp. 76-77.

This is a widely distributed species in montane areas of the United States and Canada. In the southern portions of its range it is found only at high elevations in the various major north-south mountain ranges. It is, however, rarely taken in large numbers, and, like its close relative *H. nunenmacheri* Bridwell, exhibits a decided preference for flowers of the family Rosaceae.

***Hylaeus (Cephalylaeus) nunenmacheri* Bridwell**

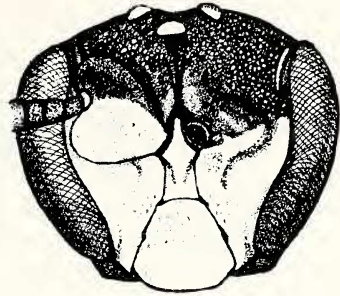
Hylaeus nunenmacheri Bridwell, 1919. Proc. Haw. Ent. Soc., 4:157. ♀.

Hylaeus (Cephalylaeus) nunenmacheri, Michener, 1942, Jour. N.Y. Ent. Soc., 50:274.

This species superficially resembles the preceding species but is smaller and less robust; it may be separated from *H. basalis* by the key given above. Although presently known only from California, where it occurs from sea



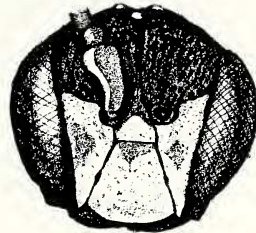
aztecus



basalis



nunenmacheri



sparsus

Figure 2. *Hylaeus* species. Aspects of the male faces. Figures by Ruth Ann DeNicola.

level to moderate elevations in the Coast Ranges and Sierra Nevada, *H. nunenmacheri* undoubtedly will be found in Oregon, Nevada, and Baja California.

KEY TO SPECIES OF *METZIELLA*

1. Males *sparsus* (Cresson)
 Females 2
 2. Propodeum with distinct more or less horizontal basal area which is almost twice as long as median length of postscutellum
 *hydrangeae* Mitchell
- Propodeum usually evenly sloping from base to apex; if a horizontal basal area present, it does not exceed median length of postscutellum *sparsus* (Cresson)

***Hylaeus (Metziella) sparsus sparsus* (Cresson)**

Prosopis sparsa Cresson, 1869. Proc. Boston Soc. Nat. Hist., 12:271. ♀.

Prosopis thaspis Robertson, 1898. Trans. Acad. Sci. St. Louis, 8:43. ♀.

Prosopis potens Metz, 1911. Trans. Amer. Ent. Soc., 37:103. ♂.

Prosopis modestus, Metz, 1911. *Op. cit.*, p. 121, (in part).

Hylaeus (Metziella) potens, Michener, 1942. Jour. N.Y. Ent. Soc., 50:2743; Mitchell, 1960. Tech. Bul. 141, North Carolina Agr. Exp. Sta., p. 78.

This species ranges from southeastern Canada to Georgia and westward to central Texas. Specimens which I have seen from Texas tend toward fuller maculae.

***Hylaeus (Metziella) hydrangeae* Mitchell**

Hylaeus (Metziella) hydrangeae Mitchell, 1951. Jour. Elisha Mitchell Sci. Soc., 67:244. ♀.

A single female, which agrees quite closely with Mitchell's original description of this species, is the second known specimen of this apparently rare species. It was collected at Ft. Gordon, Richmond Co., Georgia, June 14, 1959 (R. R. Snelling; LACM).

Since the male of *H. hydrangeae* remains unknown, it cannot be included in the key, but may be expected to exhibit the long basal area of the propodeum which is characteristic of the female; in all probability the pronotal collar will be maculate, a further character to separate it from typical *H. sparsus*.

***Hylaeus (Hylaeana) aztecus* (Cresson)**

Prosopis azteca Cresson, 1869. Proc. Boston Soc. Nat. Hist., 12:272. ♀.

Hylaeus aztecus, Cockerell, 1924. Proc. Calif. Acad. Sci., Ser. 4, 12:530.

This is a widely distributed Mexican species which has recently been collected in southern California, Arizona, and Texas. Examination of the male terminalia indicates that this species should be assigned to the subgenus *Hylaeana*.

New records: California: 1 ♀, In-Ko-Pah Gorge, 9 mi W Coyote Wells, Imperial Co., III-26-1961 (J. Powell; CIS), on *Hyptis emoryi*. Arizona: 1 ♀, Gardner Can. Rd., Santa Rita Mts., Pima Co., X-19-1957 (G. D. Butler; UA); 1 ♀, Ruby, Pima Co., VIII-16-1961 (F. G. Werner; UA); 1 ♂, Ft. Huachuca, 11 mi NW, VII-10-1952 (R. H. and L. D. Beamer, C. Liang and W. E. LaBerge; UK), on *Verbesina encelioides*. Texas: 1 ♂, Progreso, IV-12-1950 (R. H. and L. D. Beamer, W. P. Stephen, C. D. Michener, J. G. and B. L. Rozen); 1 ♀, Brownsville, IV-17-1952 (C. D. Michener, R. H. and L. D. Beamer, A. Wille, W. E. LaBerge); 1 ♂, Southmost, IV-13-1950 (R. H. and L. D. Beamer, W. P. Stephen, C. D. Michener, J. G. and B. L. Rozen; all UK). Baja California del Norte: 1 ♀, San Felipe, 3 mi SW, III-29-1963 (G. I. Stage; LACM).

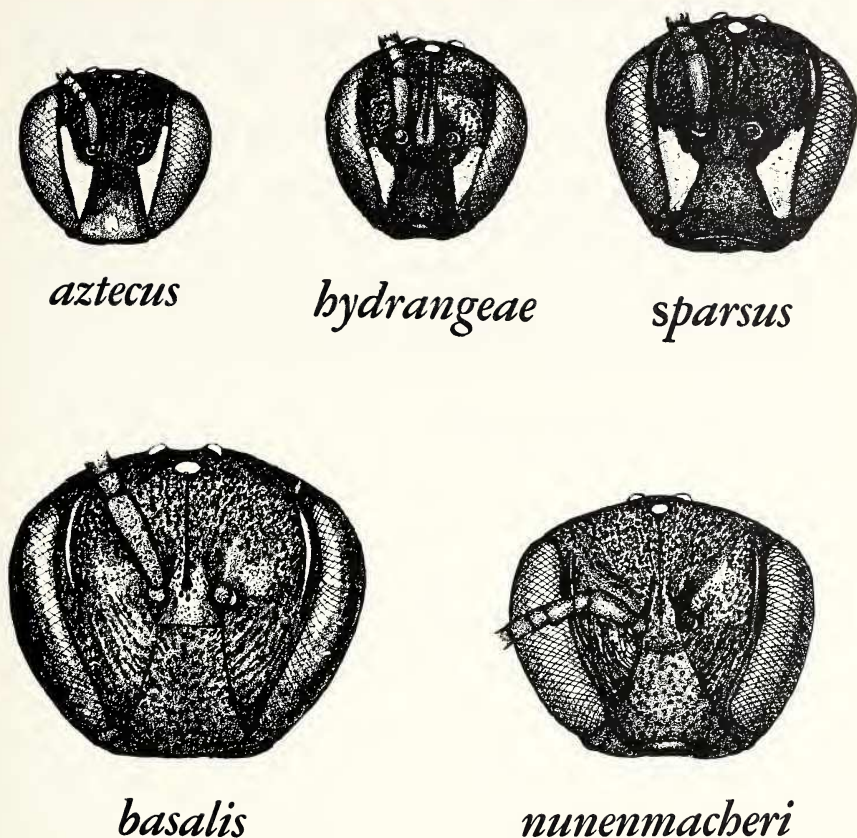


Figure 3. *Hylaeus* species. Aspects of the female faces. Figures by Ruth Ann De-Nicola.

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Werner, University of Arizona (UA); Gerald I. Stage (GIS). Specimens from the collection of the author and of the Los Angeles County Museum of Natural History are indicated (LACM). The illustrations were prepared by Ruth Ann DeNicola.

LITERATURE CITED

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